IN THE CLAIMS

1. (Amended) A driver circuit for an optical source, the driver circuit comprising:

at least an input stage and an output stage, the output stage being operatively coupled to the input stage; and

a current generator circuit adapted to establish a modulation current for application to one of a first output and a second output of the output stage in accordance with a differential input data signal applied to the input stage;

the input stage being configured to include first and second differential pairs;

the first differential pair having the differential input data signal applied thereto, and being implemented using MOS devices;

the second differential pair comprising an emitter-coupled differential pair and receiving as its inputs corresponding outputs of the first differential pair, and being implemented using bipolar devices;

the first and second differential pairs being configured such that application of the differential input data signal at a substantially rail-to-rail voltage swing to the first differential pair will not exceed a junction reverse bias constraint of the second differential pair.

2. (Original) The driver circuit of claim 1 wherein the optical source comprises a laser diode.

3. (Original) The driver circuit of claim 1 wherein the output stage comprises a differential pair.

4. (Original) The driver circuit of claim 1 wherein the input data signal comprises a single-ended input data signal configured for conversion internally to the driver circuit to a differential data signal adapted to control application of the modulation current to the first and second outputs of the output stage.

5. (Original) The driver circuit of claim 1 wherein the first differential pair is configured to provide substantially unity gain.

6. (Original) The driver circuit of claim 1 wherein the second differential pair is configured to provide a gain greater than unity.

7. (Original) The driver circuit of claim 1 wherein the bipolar devices of the second differential pair comprise SiGe bipolar transistors having the reverse bias constraint.

8. (Amended) An integrated circuit comprising:

at least one driver circuit for an optical source, the driver circuit comprising:

at least an input stage and an output stage, the output stage being operatively coupled to the input stage; and

a current generator circuit adapted to establish a modulation current for application to one of a first output and a second output of the output stage in accordance with a differential input data signal applied to the input stage;

the input stage being configured to include first and second differential pairs;

the first differential pair having the differential input data signal applied thereto, and being implemented using MOS devices;

the second differential pair comprising an emitter-coupled differential pair and receiving as its inputs corresponding outputs of the first differential pair, and being implemented using bipolar devices;

the first and second differential pairs being configured such that application of the differential input data signal at a substantially rail-to-rail voltage swing to the first differential pair will not exceed a junction reverse bias constraint of the second differential pair.

9. (Original) The integrated circuit of claim 8 wherein the optical source comprises a laser diode.

10. (Original) The integrated circuit of claim 8 wherein the output stage comprises a differential pair.

11. (Original) The integrated circuit of claim 8 wherein the input data signal comprises a single-ended input data signal configured for conversion internally to the driver circuit to a differential data signal adapted to control application of the modulation current to the first and second outputs of the output stage.

12. (Original) The integrated circuit of claim 8 wherein the first differential pair is configured to provide substantially unity gain.

13. (Original) The integrated circuit of claim 8 wherein the second differential pair is configured to provide a gain greater than unity.

14. (Original) The integrated circuit of claim 8 wherein the bipolar devices of the second differential pair comprise SiGe bipolar transistors having the reverse bias constraint.

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15. (Amended) An apparatus comprising:

an optical source; and

a driver circuit coupled to the optical source, the driver circuit comprising:

at least an input stage and an output stage, the output stage being operatively coupled to the input stage; and

a current generator circuit adapted to establish a modulation current for application to one of a first output and a second output of the output stage in accordance with a differential input data signal applied to the input stage;

the input stage being configured to include first and second differential pairs;

the first differential pair having the differential input data signal applied thereto, and being implemented using MOS devices;

the second differential pair comprising an emitter-coupled differential pair and receiving as its inputs corresponding outputs of the first differential pair, and being implemented using bipolar devices;

the first and second differential pairs being configured such that application of the differential input data signal at a substantially rail-to-rail voltage swing to the first differential pair will not exceed a junction reverse bias constraint of the second differential pair.

16. (Amended) A circuit comprising:

at least an input stage and an output stage, the output stage being operatively coupled to the input stage;

the input stage being configured to include first and second differential pairs;

the first differential pair having a differential input data signal applied thereto, and being implemented using MOS devices;

A' Cont'd

the second differential pair comprising an emitter-coupled differential pair and receiving as its inputs corresponding outputs of the first differential pair, and being implemented using bipolar devices;

the first and second differential pairs being configured such that application of the differential input data signal at a substantially rail-to-rail voltage swing to the first differential pair will not exceed a junction reverse bias constraint of the second differential pair.

17. (Original) The circuit of claim 16 wherein the circuit comprises a driver circuit for an optical source.

18. (Original) The circuit of claim 16 wherein the circuit comprises a limiting amplifier.